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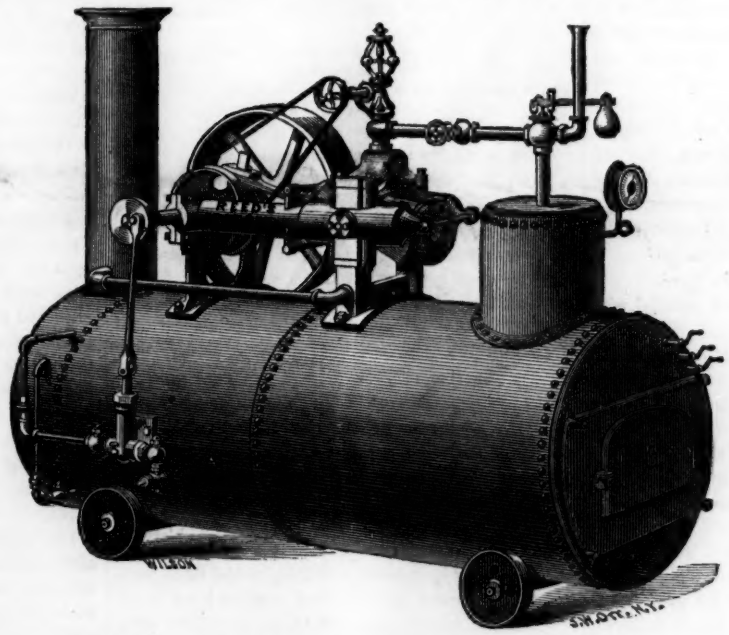
Reed's Patent Consolidated Engine.

The engraving presented herewith, gives an excellent idea, at a glance, of Reed's Improved Portable Engines, which are asserted to be second to none for the purposes designed—especially for mining, boring and pumping oil and salt wells; also for saw-mills, quartz-mills, and all kinds of manufacturing where engineering skill and repairs are difficult to obtain. These engines take the place of horse-power and manual labor on farms and plantations, as well as in small manufactories, embracing, as they do, the qualities of compactness, durability, economy, and simplicity, dispensing with those parts most liable to wear and derangement such as eccentrics, cross-heads, slides and connecting rods.

The boiler is tubular, having a large space for sediment below the grate and tubes to adapt it to the use of hard water. The whole is mounted upon wheels, and can be easily operated by a person of ordinary capacity. The engine is oscillating, and also made stationary; or adapted to steamboats, land carriages, street cars, etc.

It has two improvements secured by patents. One is the mode of admitting steam to the cylinders so that a double engine can be reversed instantly, and controlled by a simple lever attached to the starting valve. The other consists in so constructing the trunion bearing as to be easily adjusted by screws when the engine is in operation.

Messrs. Reed & Cogswell, Consulting Engineers, 117 Liberty street, are the manufacturers of these engines.



REED'S PATENT CONSOLIDATED ENGINE.

Extraction of Vegetable Oils—A method has been invented for the extraction of oils from vegetable matter, such as cotton seed, linen, rapeseed, hemp, cloves, mustard, olives, palm &c., by means of light hydroicarbon oils, which are volatile below 212° F.—The vegetable matter previously ground, or the oil cake resulting from the hydraulic press method, is introduced into extractors which are hermetically sealed in order to prevent the loss of the hydrocarbons by evaporation. After the dissolvent is charged with the oil, a fresh portion of it is introduced in order to complete the extraction. The hydro-carbons are reclaimed by distillation, and used repeatedly for procuring oil from fresh portions. The oil cake is not injured for food by this operation, and the yield is said to be 25 per cent. more than can be obtained by the hydraulic press. The bisulphide of carbon will accomplish the same end, but its odor and injurious effect on the workmen have prejudiced the manufacturers against its use. It is notorious that either method will extract more oil and fat from animal refuse than any other way; notwithstanding this fact, the rude and wasteful fat boiling is still carried on.

Anthracite Used as Medicine.

Dr. N. Dyes, chief medical officer of the Hanoverian regiment of the Hussars of the Guards, at Verden, having remarked that pigs eat coal with avidity, took the idea of adding a certain quantity of this mineral to the food given to fatten them. He gave to some of them from 3 to 6 drachms per day, and remarked that these were noted for their liveliness, good appetite, growth, and rapid increase of flesh. Having repeated the experiment on several occasions, Dr. Dyes came to the conclusion that in the fattening of pigs anthracite is for the greater number of these animals, superior to common salt as a means of quickening digestion and maintaining general health; that constitutes a preservative against the catarrh of the stomach and intestines, as well as against cholics, and that it prevented all the maladies that result from impoverishment or thinness of the blood; also that coal exerted a favorable action on the liver, spleen, &c. Perfectly convinced as to the correctness of his observations, Dr. Dyes did not hesitate in administering coal to persons attacked with abdominal complaints, and chose for that purpose the Piesberge anthracite, which is found in great quantities in the neighborhood of Osnabruck. He obtained invariably and rapidly the best results from the employment of this mineral, which had not in any case produced the slightest evil effect. For two years Dr. Dykes has employed anthracite in a number of abdominal affections, and obtained such remarkable results that he declares that it cannot be too much recommended in catarrhs of the stomach or cramps, and a host of other maladies which are usually treated by coal-tar or charcoal. For diseases of the skin he prefers anthracite internally to coal tar externally. Dr. Dyes gives in fine powder 15 to 30 grains per day, incorporated in some convenient pulp or pills. There is nothing extraordinary in all this, when we consider that the anthracite contains carbon 0·90; hydrogen, 0 03; volatile matters (sulphur,) 0·03; ashes, 0·04, in 100 parts.

Metropolitan Water Supply.

The existing water companies appear to be on the move towards the improvement of their supply. Surveys, it is said, are in progress with a view of applying to Parliament in the ensuing session for an Act to enable existing companies, or some of them, to procure a better supply. It is proposed to utilize the sewage of the towns which lie on the Severn above Tewksbury, in accordance with the principals laid down in the report of the Rivers Commission, 1865, and to take the supply from that river just above Tewksbury, and convey it thence to large reservoirs at a distance of nine miles, and at a sufficient elevation to allow the supply to pass from these reservoirs to London, delivering the water there at the requisite height to afford a constant supply at high pressure to every portion of the metropolis. It is said that the flow of water so far, without receiving any contamination in its passage, will so oxydize the organic matter held in suspension that it will tend greatly to soften and purify the water; but if in close pipes or aqueducts, however large, this seems doubtful. The estimate of the probable cost of carrying out this undertaking, as made by the engineer, Mr. Hamilton Fulton, is 3,000,000*l.* Should it upon further investigation be found impracticable to divert the sewage satisfactorily from the towns above referred to, it is considered that a pure supply could be procured from the sources of the river Wye, which drains the districts in the vicinity of Plynlymon range, where the annual rain-fall is equal to 70 inches deep. Mr. Fulton estimates the additional cost of this plan at 2,500,000*l.*, or a total of 5,500,000*l.*

If the sewage on the towns on the Severn is to be diverted from that river, might not the sewage of the towns on the Thames, which is nearer home, be as well diverted from that river, and two useful purpose for London served at one and the same time? Or, if there be any fear as to the diminution of the quantity of water in the river, is there not the same fear with respect to the Severn? Water from mountain lakes, however, would be far preferable to river water.—*Builder.*

Large Trees.—The largest standing tree in the mammoth grove of Mariposa county, California, is called the "Grizzly Giant." If it were cut off smooth, 50 horses could easily stand, or sixteen couples dance, upon the stump. One of the Calvaras trees was cut down by boring with augurs, and occupied five men 25 days. Botanists do not now class them among cedars, but name them *Sequolas.*

On National Standards for Gas Measurement and Gas-Meters.

By GEORGE GLOVER, Esq.,

Formerly Lecturer on Natural Philosophy, Royal College of Surgeons, Edinburgh, and Vice-President Royal Scottish Society of Arts, and Superintending Medical Inspector General Board of Health, Whitehall.

From the London Journal of the Society of Arts, No. 224.

The subject of gas measurement, which I am about to have the honor to bring under the notice of the Society, involves the consideration of two kinds of instruments—gasometers and gas-meters. The gasometers are of two kinds—the "national standard gas-holders," deposited at the Exchequer, and those in ordinary use, generally called "testing gas-holders." The gas-meters are also of two kinds—the wet and the dry.

When, more than half a century ago, coal gas came into use, the want of a measure was soon felt. Such a measure was perceived to be indispensable in the event of gas becoming a staple article of commerce. To meet this want, Mr. Samuel Clegg invented the instrument which, from its its revolving drum or measuring part being partially submerged in water, has been denominated "the wet meter." Ingenious in principle, it was soon found defective in practice. Its principal defect arises from the evaporation of the water, causing constant variation in its measuring capacity. The bottom of the measuring chambers is defined by the plane of water in the meter, and the measuring chambers are diminished or enlarged by the accidental quantity of water which may be present at any given instant. The water is continually undergoing change of level from evaporation, which is more or less rapid according to the quantity of gas which passes through the meter, and the change of temperature. The wet meter likewise varies in its measurement with every departure from the true horizontal plane. Inclined forwards, it measures too slow; if backwards, it measures too fast. It also varies with the varying pressure of the gas as it enters the meter. To render a wet meter a fixed measure, four things are essential:

I. That the plane of the water remain fixed.

II. That the bottom of the meter be parallel with the plane of the water.

III. The meter be placed and maintained on a hori-horizontal plane.

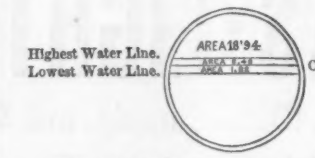
IV. That the pressure of the gas when it enters the meter be uniform.

Compliance with these conditions is impracticable, and it is much to be regretted that the baffled ingenuity and futile devices of half a century have not made this conviction general, and that, at the present hour there should be large towns, such as Liverpool, Birmingham, Sheffield, and several in Scotland, in which gas companies, to their own injury and that of the public, still adhere to the wet meter, notwithstanding its acknowledged defects.

It has been customary, in cases of doubt as to the accuracy of the measurement of gas by wet meters, to lift them from their place, to put them on a horizontal plane, and to adjust the level of the water to a plane of correct measurement. Such a test is no more a proof of a meter's correct performance than a watchmaker setting a watch to Greenwich time would be evidence of the watch having gone correctly for twelve months past, or a guarantee for its accuracy for twelve months to come. The only correct method of testing the wet meter's performance during any given time it may have been in use, is to examine the internal surfaces of the front and back plates where the water at its various levels has traced or oxidized distinct lines. In a three-light meter, the difference between the two extremes (viz: the highest and lowest water-lines) ought not to exceed 3 16ths of an inch, so as to give the variation of 5 per cent. allowed by the "Sales of Gas Act;" whereas, in practice, that distance is found to reach an inch, or even more, thus showing, of course, a proportionate amount of variation in the measuring capacity of the meter. The diagrams (Fig. 1.) will illustrate this.

Fig. 1.

Diagrams of wet meters, showing the precise amount of variation.

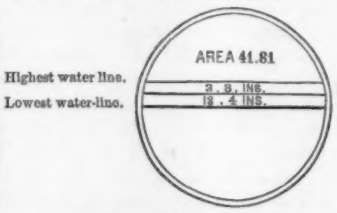


Two-Light Meter.—Scale 1 inch = 1 foot.

Registering 33 per cent against consumer.
" 7 " " company.

Area of segment down to correct water-level, 16·94 + 8·46 =	25·40
" " " highest "	16·94
Against consumer—variation.....	8·46
Then, as to 25·40 : 8·46 : : 100 : 33·3 per cent.	
Area of segment down to lowest water-level.....	27·22
" " " correct "	25·40
Against company—variation.....	1·82

Then as 25·40 : 1·82 : : 100 : 7·16 per cent.



Five-Light Meter—Scale 1 inch = 1 foot.

Registering 9 per cent. against consumer.
" 29 " " company.

Area of segment down to correct water-level..... ..... =	45·31
" " " highest "	41·81
Against consumer—variation,.....	3·5
Then 45·31 : 13·4 : : 100 : 8·86 per cent.	
Area of segment down to lowest water-level.....	58·71
" " " correct "	45·31
	13·4

Then as 45·31 : 13·4 : : 100 : 29·49 per cent.

There has been no lack of effort to remove this defect in the wet meter. Ingenuity, labor, and vast sums of money have been lavished upon it. The Patent Office, year after, has been besieged by inventors who imagined they had discovered a remedy; but, for all practical purposes, there has been little, if any, improvement on the original invention.

The inventions which have aimed at preserving a fixed water line may be reduced to three classes:—Those having a reservoir or small cistern in connexion with the meter, and a tube communicating with the surface of the water in the meter, on the principal of a bird fountain; those in which a spoon or bent tube on the axle lifts a small quantity of water in each revolution by dipping into a cistern or water-box; those which float the drum itself, or have a float nicely balanced, of semi-cylindrical or hemispherical form, turning on a horizontal axle mounted near the level of the water in the meter. Many of those inventions have, from time to time, obtained partial success. Some of them have been revived again and again under different names and with slight modifications, but all of them have ended in failure and disappointment. The method of floating the drum Mr. Clegg invented shortly before his death. The simplicity and theoretical beauty of the invention are apparent, and, could the sides of the revolving drum be kept vertical to the plane of the water, the drum itself perfectly balanced and free from deposit; could the water be kept pure, the pressure of the gas free from variation, the moving parts from corrosion, it might be hoped that one serious practical objection to the wet meter had been removed. These conditions, however, all experience has shown cannot be realized.

Vigorous efforts are being made to revive the use of a meter, constructed on the same principle of floatation, which was patented by Messrs. Sanders & Donovan in 1855. Theirs is the simplest and most scientific invention yet propounded for preserving the uniform level of the water line. Its ingenuity reflects high credit on the inventors. But, without unfairly detracting from this, it may be stated that their invention has increased both the size and complexity of the instrument, that its extreme delicacy and complication of its parts, while multiplying the chances of error in its workmanship, expose it to quicker decay, hence repair and replacement are necessarily more frequent. Its delicacy, in fact, unfits it for every-day use, and makes it very liable to derangement. The water in the meter becomes impure and even tarry, impurities, from time to time are deposited on the float, its balance is impaired, its axle and the float corrode, small holes are formed in it by corrosion, through which the water enters, when it ceases to be a float, so that it not only fails to adjust the level of the water, but becomes more defective than the ordinary wet meter.

It is open, besides, to the very serious objection that, by unscrewing the lower plug, as much gas can be got from the outlet of the meter itself, a circumstance that offers a strong temptation to fraud.

The variation in measurement is, of course, the grand objection to the wet meter. It is not the only one, however. Though fatal in itself, there are others I may just mention. There is the annoyance from the annoyance from the unsteadiness of the lights, familiarly called "jumping." There is the danger of sudden extinction. There is the danger of escapes of gas through the meter being interfered with, as when the plugs are removed that the water may be replenished, and, through carelessness, not replaced. There is the facility with which the measurement in the same meter may be made to vary, either from the quantity of water put into the meter, the inclination given to it, or from both, and the consequent temptation to fraud.—There is the necessity of placing it in the basement of the house, and the consequent attempt to prevent the "jumping" of the lights by giving all the pipes a gradual rise from the meter to admit of the water trickling back into it, an attempt at once futile, expensive, and injurious to house property. Its very situation in obscure out-of-the-way corners is apt to create a suspicion in the mind of the consumer that he is wronged in his measurement, while the gas companies are made dependent on the vigilance of their inspectors to an extent undesirable alike for the employer and employed. The defects of the wet meter too often expose the managers and directors of gas companies to unjust suspicions, while really the companies are the greatest losers by it, and the parties most deeply interested in the just measurement of the gas. When the meter is found not to have registered at all, or to have registered only a small portion of the gas passed through it, it is not unusual to ask the consumer to pay for his gas without reference to his meter, but to his payment for the corresponding quarter of the previous year, a mode of adjustment unsatisfactory to both the seller and the buyer.

The interests of the public and the gas companies alike demanded that the evils of this system of measurement, which involved variations reaching sometimes as high as 20 ond 30 per cent., should be fairly met. "Why," it was asked, "should not gas be justly measured as other staple commodities are measured? Why should not the consumer have a guarantee that he really gets the quantity he pays for, and the producer that he really gets payment for the quantity he delivers? If security be given for the just measurement of a gallon of oil and a pound of candles, it is not less necessary for a cubic foot of gas." From evidence given before Parliamentary Committees, it appeared that owing to the want of a legal criterion and inspection, what was called a cubic foot differed, when measured by the meters of one manufacturer as compared with those of another, as much as 3 per cent, and that when the meters were in the most perfect working condition. The prevailing dissatisfaction, and the antagonism, prejudicial alike to the gas companies and to the public, to which this state of things gave rise, at length drew the attention of the Legislature to the subject. The result was a bill presented by Lord Redesdale to the House of Lords, in the first session of 1859, for the purpose of establishing a cubic foot for gas measurement, and extending the general law of weights and measures to gas meters, with such other provisions as the special nature seemed to require.

(*To be continued*)

The American Association.

The following are extracts from the proceedings of the Buffalo meeting of the American Association for the Advancement of Science:

PROFESSOR WURTZ'S DISCOVERIES.

Prof. Henry Wurtz of New-York presented a paper "On the Utilization of Sodium in Gold and Silver Amalgamation." This paper is regarded as one of the most important yet brought to the notice of the Association.

Prof. Wurtz stated that very much discussion has been aroused during the past year, arising out of his recently announced discovery of the extraordinary effects of the alkali-metals in amalgamation; and much further progress having been made, he thought the Association would be interested by a subject now regarded as of so great public importance. The investigation made last year by Prof. B. Silliman, on California ores, many of which were communicated to the National Academy of Sciences last winter, and widely copied in the newspapers, were continued with comfirmatory results.

Some objections to the use of sodium for silver ores, on the part of a California metallurgist named Kustel, were then briefly discussed. Kustel erred mainly in supposing that the purpose of the sodium-amalgam was to *decompose* silver ores by extracting their sulphur, by sheer force of chemical affinity. The rapid and perfect collection and separation from a slime or pulp of contained and diffused silver-amalgam by the use of sodium-amalgam would alone give it an obvious importance, but it has other values when properly understood. Kustel's experiments having been founned upon an incorrect idea of the mode of action have but little applicability *pro or con*, and inconsistencies were pointed out in his conclusions. Kustel's conclusion that iron pans cannot be used with sodium, for instance, is shown to be fallacious by very numerous working results now on record. In any case it is fortunate that one *negative* result has little weight against concurrent positive results of others. Mr. Kustel, however, admits the value of sodium for *gold* ores, and others in California experienced in amalgamation do not concur with Mr. Kutsel in his opinion regarding silver ores.

As was to be expected, there are in England also those who cavil at the "new fangled" method. One correspondent of a London journal objects, partly on the ground that the "sodide of gold" has not yet been discovered. Another oracularzy writes ,that "the sodium process is alike unphilosophical and commercially impracticable." Some words were devoted to the conflicting claim to priority of discovery which was entered by Mr. Wm. Crookes, one of the most learned, industrious, and successful, of the English scientists. The graceful concession of this point, which Mr. Crookes is considered of late, both by scientists and jurists, to have made, by his own silence, and by publications in the journals ostensibly authorized by him, it is thought will not prove any appreciable detraction from the laurels so well and worthily won by him in the field of chemical discovery.

The most surprising articles elicited by this discovery in transatlantic journals, have emanated from certain persons who have denied the anthenticity of the discovery altogether, and claimed that the use of sodium in amalgamation of ores has already been a matterof publicity for centuries! Mr. John Calvert and another writer (anonymous) have put forth the astounding assertion that extracts can be "given from more than 100 works in various languages," showing that not only sodium but magnesium has been used in this way from time immemorial. Three works are referred to by name —Schwartz's "Alchymia de Salabus," Albaro Alonso Barba's "Art of Metals," and Roger Bacon's "Ars Omnia." Schwartz's book probably does not exist upon this continent, but Prof. Wurtz has been so fortunate as to find a copy of the very edition of Barba referred to, in the hands of Prof. George J. Brush, of Yale College, who kindly lent the precions volume, and he exhibited it to the Section. As could have been anticipated there was nothing in it indicating, in the remotest manner, a knowledge of sodium, much less of its use in amalgamation. Prof. Wurtz expresses his surprise, however, to find that at the time this book was written, in 1640, almost every refinement in the art of amalgamation, and in other branches of gold and silver metallurgy practiced at the present day, excepting the use of sodium (and not excepting many supposed to be especially of modern origin) was known and used by Barba and his cotemporaries. As regards the still more ancient work of Schwartz referred to, Prof. W. thinks it may be said with reason that a person of lively immagination could find plainly set forth, in the jargon of the alchemists, every one of the discoveries of the nineteenth century, beside a multitude of other discoveries, either yet to be made or never to be made.

The third work named, that of Roger Bacon, it appears has never been published, but exists, according to Mr. Calvert, as a manuscript of immense magnitude; from which he copies the following from a passage on "The metal of salt." under the heading of "The magic of salt:" "It is well that the vulgar understand not the good and great art of salt, as if it were known to all, riches would no longer be held rare or respected, as with this metal much gold can be obtained, and such great virtue doth it contain, that one piece of such size that will cover the top of the small finger will work wondrous magic throughout a great mass of such worthless stuff that no man would buy for the smallest coin; yet when this and other metals well known to all men, shall lovingly and speedily unite in one common mass, then the adored of all metals becomes life, and is born unto man, and true and real gold may be taken from these common metals without loss to them in weight or virtue, so that by great craft, cunning and magic, not enjoyed by common men, good gold, never again to be lost, is transmuted from the vilest of dross; and so men may enjoy riches without prying into others' money-bags or borrowing from those who have little to lend."

This is of course, set forth by Mr. Calvert as his own translation of the original Latin manuscript, and is interpreted by him as relating to the extraction of gold from ores by amalgamation; but Prof. W. denies the possibility of any such interpretation, regarding it rather as describing merely one of those obscure and apochryphal methods of transmutiug other metals into gold, in which the alchemists so abound, and he suggests that, even were it an unmistakeable description of the use of sodium in amalgamation, it would still have no bearing whatever on the question at issue, not being cited from a *published* work, but from one which has probably been as much concealed from the public eye as if it had been newly exhumed from the catacombs of Egypt.

The last branch of the subject touched upon related to the very recent and wonderful announcement from an unknown source, so widely and persistently paraded in the public press, of the amazing *explosiveness* of the amalgam of sodium; one of the most prominent of the New-York dailies having for example, set forth in a leading article, that while metallic sodium is a "harmless substance" (an erroneous statement so very grave and fraught with danger as to be inexcusable even on the plea of ignorance) on the other hand, "the terrors of nitro-glycerine itself dwindle into insignificance when compared with those of the new compound termed sodium-amalgam:" and that one ounce of sodium-amalgam is equal to twenty-five pounds of gunpowder," and similar rubbish *ad nauseam*. With regard to the latter comparative statement, Prof. W. remarked that, according to this, the samples of sodium-amalgam lying on the table before him were equal to six tons of gunpowder, and that he had often made with his own hands and in one operation, in one day, a quantity equal to 100,000 pounds of gunpowder. His chief object in even alluding to a matter which he was aware was to a chemist merely

"A thing for laughter, fleers, and jeers."

was to explain the object and origin of such a fantastic and apparently puerile hoax. It was simply an ingenious but futile *commercial trick*, the motive for it having been the hope of embarrassing the transportation and introduction of amalgams of sodium into the mining regions, by those legitimately entitled to introduce it, until the completion of certain arranmements for infringing upon the patent rights that have been granted by the United States in the premises.

In the course of Prof. Wurtz's remarks, he was interrupted by questions from Profs. Stoddard, Perkins and Hadley.

At the conclusion of the paper, Dr. President Barnard remarked that he felt great interest in the discovery made by Prof. W., and thought he might be regarded as one of the benefactors of the world in making two grains of gold available where there was but one before.

A NEW ELECTRICAL INSTRUMENT.

Dr. L. Bradley, the electrician, read a paper descriptive of an instrument of his invention which he has called the "Anthistometer," for conveniently determining and correctly measuring the resistance which conductors of electricity oppose to the free propagation and transmission of a current through them, and the resistance of coils, magnets, batteries, &c.

Professor Tillman spoke warmly in commendation of the instrument.

American Enterprise in South America.

We received, yesterday, says the Titusville *Herald* a call from George E. Corey, Esq., formerly an operator on Oil Creek, but for a year past engaged in sinking oil wells on the Pacific coast, as an employee of the Central Petroleum Company. As a partial result of the undertaking, Mr. Corey exhibited to us a sample of crude oil 31° specific gravity. Its general characteristics are not unlike that of crude oil obtained here. The party who gave to the enterprise its practical effect, were but seven in number, and included E. P. Larkin, General Superintendent; John Lay, Chief Engineer; George E. Corey, Superintendent of Pumping and Drilling, besides an assistant driller, a carpenter, a blacksmith, and a bookkeeper. They sailed from New York on the 17th of July, 1865, and reached their destination on the 8th of September. Their mechanical apparatus consisted of only one engine and one complete set of drilling tools and rig.

The territory to which they were attracted is 280 miles north of Lima, and 18 miles from Tumbus, a small settlement on the coast. The wells were sunk within twelve rods of the beach. Oil had been previously developed in the same locality by the natives. It was the custom to dig trenches or pits into which the oil would drain from the crevices and seams of the rock. There is still one of these pits, 27 feet in depth, and eight feet square at the base, and in which, our informant says, the oil had accumulated to the depth of six feet.

The agents of the Central Petroleum Company leased forty square miles of this oil territory for their operations, and proceeded to sink three wells. The first was put down to a depth of 185 feet, the second 195 feet, and the third had, at last accounts, reached the depth of 436 feet. It was the intention of the Company to drill five hundred feet before testing.

The first well pumps 18 barrels every twelve hours; the second, 14 barrels in the same interval—pumping and flowing alternately. The oil is sold readily at $5 per barrel, and is taken chiefly by the Lima Gas Company. The facilities for exporting to England are superior to those here, and should the enterprise of the Central Petroleum Company be extensively prosecuted, the oil region of Peru may soon compete with that of Pennsylvania in the foreign petroleum market.

It is a peculiarity of these new mines that while there is considerable gas, no water is found—not a barrel of water having been taken from the deepest well. The first rock is soapstone, about twenty feet from the surface, and from ten to twenty feet in thickness. The sand rock is about the same distance below; no third rock has yet been found.

The Pacific steamers run within one-fourth mile of the beach, which offers a good harbor to vessels of the largest class. Labor is cheap, but poor.

The object of Mr. Corey's return is to procure six additional engines, six sets of drilling tools, and other apparatus to match.

Correspondence.

The Ignition Test for Petroleum.

EDITORS MINING & PETROLEUM STANDARD AND AMERICAN GAS-LIGHT JOURNAL:

GENTLEMEN—The following correspondence explains itself. I am induced to forward it to you for publication if you see fit to insert it, deeming the subject of *public* importance, although apparently sought for only among those engaged in the business of dealing in or inspecting Petroleum:

NEW YORK, August 22, 1866.

DEAR SIR—In the inspection of refined petroleum there appears to be some dispute whether it is intended to take the *fire* test of the oil when it explodes so as to put out the light only, or wait till the oil takes fire and continues to burn, independently of how many times it puts out the light. I have often noticed that with the instrument having a small wick across the surface the light is sometimes put out several times before the oil takes fire and continues to burn. I should much like a reply to this over your own signature, and if you can procure me a certificate of what the practice is in relation to the above by Inspectors of your city,, you will much oblige.

Yours very respectfully, O. L. A.

[REPLY.]

NEW YORK, August 28, 1866.

DEAR SIR—In reply to yours of Aug. 22d, which I have taken the liberty to publish without inserting your name as I have not consulted with you in regard to it, and it forms only one of a number of similar inquiries which I cannot, without neglect of my business, possibly find time to answer individually, I beg to say that the question itself as to "whether it is the point at which the vapor evolved by the oil extinguishes (puffs out) the light, or whether it is the point at which the said vapor takes fire and remains burning upon the surface of the oil, is the point required," is just the question which oil men should long since have decided for themselves, or which, in the event of their not having done so, insurance companies and legislative bodies should have decided for them. I trust you will pardon me for saying that at this late day it seems a great pity that a question like this should need asking at all, or be in dispute between parties engaged in the manufacture of dealing in or inspecting Petroleum, and yet I am compelled to say that every few days this question, in various forms, but precisely this question in substance, is demanded.

I have again and again been asked which instrument is best for testing oil, and my invariable reply to this has been: "If you know in your own mind what it is you wish to find out by the test to be made, I can perhaps reply to your inquiry and give you proof (if its correctness is challenged) that the reply is a correct one." This, my dear sir, is, as nearly as possible, the answer I am compelled to give you. You ask me whether the point given by the coal oil testing apparatus at which the light is extinguished, or the point at which the oil takes fire is the correct one? I say to you that it entirely depends upon what you want to know. If you care at all about the former, then you have the answer with the reservation which I will presently notice; but if the question be, for the insurance companies, for the people whose property is endangered by proximity to temporary or permanent storages of oil, or for the Legislatures whose duty it is to frame laws for the protection of the community and yet with due regard for the interests of those concerned in the business of petroleum—commercially or as manufacturers—I say if the question be for all these—"At what degree of temperature does this oil or that oil become *dangerous*, from being, as it is beyond question, a perfectly harmless article at one temperature to a most dangerour article at another?" then I reply most confidently that *the degree at which it becomes ignitable* is that which is wanted by all concerned.

Now, as to the manner by which this precise degree may be obtained perhaps I am not so capable of giving ing an unbiased opinion as upon the points I have just treated, and for a reason which, without mentioning here, many will recognize; yet I cannot well discuss the point without first setting down a few principles, which, if not correct, may very easily be refuted by those who know better.

In the first place, It should be thoroughly underatood by the general public that all petroleum oil is pertectly harmless at some point of ordinary temperature, in which condition a lighted taper might be steadily floated closely to and along its surface without fear of ignition.

Second, From this point of temperature—whatever it be, according to the different qualities of the oil—*it becomes ignitable* at various temperatures.

Third, The ascertainment of the precise temperature at which *this* condition ensues is the desired object of every one concerned.

This last proposition in other words may, perhaps, be better stated thus—The ascertainment of the point of temperature at which oil *left to itself* (subjected only to the action of heat, but without any artificial manipulation) changes from a *non*-ignitable to an *ignitable* fiuid.

Now, to me, it seems as though these propositions, if they are correct, themselves suggest the only correct method of making the test—that is by taking a portion of the oil to be tested and making our artificial test approach as nearly as possible to the natural action of heat upon the oil; the more nearly we approach to this natural action, the more accurate will be the result obtained; and, in fact, by it we may obtain exactly what we want to know.

To do this, I hold that an *uncovered* vessel must be used, and for this reason: that nothing *definite* is obtained by an inclosed or covered one. I mean by this, that oil which it is not possible to ignite, or, to speak more closely to the point, that does not give off ignitable vapor under, say 115°, will puff out the testing match, and thus show the presence of vapor, at any point you choose, according to the greater or lesser perfectness of the cover. I know that in saying this a ready objection suggests itself, viz: that an open vessel cannot give us a quite similar condition of circumstances to that of oil confined in a barrel; but I reply to this that if the barrel is sufficiently porous to allow the escape of this vapor, it is, so far as our experiment is concerned, a sufficiently open vessel; or, if the *vapor is formed in consequence of the tightness of its containing vessel*, the vapor *so formed is not ignitable;* and where ignition *has* occurred, it is owing to *the heat* that the vapor was evolved, and not the tightness of the vessel; and besides this, if a cover be thought necessary, is it not at once perceived that such a cover as will allow a test to be made *must* necessarily be an imperfect one, and if imperfect, how far this imperfection may extend it becomes exceedingly important—nay, absolutely necessary—to know; and then, *when* known there still remains a very vital question to dispose of and determine, and it is the reservation which I a few sentences back alluded to in regard to *the desirability of obtaining the point at which the presence of vapor is shown.* I hold it to be quite useless unless made by the vapor test under certain positive rules we obtain some regular definite result with a view to its danger from explosion or ignition—if it be of consequence for us to know the explosive force of the vapor of a certain oil in order to guard against danger of explosion simply, and consequent loss and damage likely to arise therefrom, I assert that so far as I have heard up to this moment, NO SUCH INSTRUMENT HAS BEEN CONSTRUCTED, and whatever is shown by any instrument yet produced in relation to the vaporizing point is totally without meaning, because the closer we confine the oil the lower is the degree of temperature at which by the application of proper means we can detect it. We know, most certainly, that oil, like water, the boiling point of which is 212° Fahr., will evaporate at a very low temperature. In the case of water, it is familiar to every one, that drops upon a non-porous surface at a temperperature below 32° will dry up (that is, pass into vapor) sooner than they will freeze; and we know very well that oil of an average quality will give off more or less vapor, according to the circumstances by which it is surrounded. Now, sir, what I maintain is this, that if we cannot get, by our test, its explosive force with a view to guard against explosion, we must require it (if we want it at all) for something else; and I am unable to conceive of any other use for it unless *by it we may judge of its liabilily to ignition;* and if by getting its so-called (wrongly so-called) vaporizing point we can judge of its liability to ignition, we may as well *seek for this point at once*, and save all the nonsense and humbug about the vaporizing point. One single observation more in closing: if the oil trade and all others concerned, deem a covered instrument the best for testing oil, they should be compelled to mark their samples of such oil by the result as given by such an instrument with the cover upon it, and not as the practice has very extensively prevailed of using an instrument constructed with a cover, but always marking their oil as indicated by said instrument with the cover removed.

Very respectfully yours,

JOHN TAGLIABUE,
90 Fulton-st.

Foreign Scientific Items.

Translated for this Journal by

PROF. HENRY WURTZ.

I. GAS ENGINES.—Hugh Smith having announced as a new suggestion the use of the spontaneously inflammable variety of phosphuretted hydrogen, as a substitute for the electric spark, to kindle the explosive mixture in a Gas Engine, J. Jouanne writes to the *Journal de l' Eclairage au Gaz* of Aug. 5, 1866, claiming originality in this. Jouanne states that he suggested this to M. Lenoir, in 1861, and that the idea was applied by the latter by means of a small apparatus attached to the engine, in which the pyrophoric gas was produced in the ordinary way by the action of water on phosphuret of calcium. The gas was passed into a small bell serving as a gas-holder, from which a small bubble was sucked into the cylinder at each motion of the piston. Jouanne admits that the idea is probably more ingenious than practical.

II. PETROLEUM IN THE CRIMEA.—A Russian gentleman rejoicing in the name of Col. Ardalion Novossiltzew, has bored upon his property in the Crimea, in February last, and at a depth of forty meters (130 ft.) all of a sudden "a jet of naphtha appeared to the astonished eyes of the workmen, who took to flight, terrified" (!) but returning after their fright to the well, found a jet of salt water spouting out. In twenty-six minutes it commenced to boil, covered itself with foam, and thick smoke (spray?) arose. Stones and fragments of clay were then thrown out, and finally there appeared a jet of pure excellent naphtha (petroleum) in abundance. The well having been tubed, yielded at the rate of twenty thousand litres of petroleum per day. This would be about a 250-barrel well. Oil Creek and Pithole must look to their laurels.—*le Chimiste.*

III. CARBOLIC OR PHENIC ACID.—In view of the recent large introduction of carbolic acid into use as a disinfectant, in consequence of the earnest recommendations of many chemists, and the highly interesting and valuable experimental results of Mr. Crookes; the *Journal de l' Eclairage* recals attention to previous publications relative to the "*phenol sodique*," of Bobœuf, which is a strong solution of carbolate of soda. It was proposed to add to the water used for sprinkling the streets and public courts, either the phenic acid or the *pehnol sodique.* In the latter case, the carbonic acid of the air would set free the carbolic acid, which would permeate the lower strata of the atmosphere, and destroy all its infusorial or miasmatic germs. This Journal places the *phenol sodique* at the head of all preservatives against cholera.

IV. USE OF THE SAFETY LAMP TO PREVENT CONFLAGRATIONS.—*Le Chimiste*, of Brussels, gives some suggestions regarding the extension of the use of safety-lamps to industrial and even to domestic uses. These refer to the prevention of those frightful catastrophes which have been so frequent since the extensive introduction into common use of the volatile naphthas and benzines, products of petroleum and coal oil, and they have interest also for those who have to handle and

deal in turpentine, alcohol, ether, sulphid of carbon, and other volatile inflammable liquids. It may be that some of the tremendous fires which have annihilated such vast amounts of property in the oil-ldistricts might have been prevented by the adoption of this idea; and certainly no fire or flame should be allowed to be carried into an oil-warehouse, or into any building or room where there is even one barrel of petroleum, or even into the neighborhood of a collection of oil barrels in the open air or on a railroad oil-car, unless surrounded by wire-gauze.

To be continued.

PITTSBURG FOUNDRIES.—In Pittsburg, Pa., there are thirty-one foundries. In the first-class establishments from twenty-five to forty tons of metal can be used in a single casting. They employ an average of fifty hands. Twelve hands is the average force of the second class foundries. The present rate of wages is from two dollars to four dollars and a half, according to the character of the work. Piece work is done only in stove foundries. The metal costs an average of fifty dollars per ton—the extremes being forty and sixty-eight dollars; last year it was from fifty to seventy-five dollars.

LARGE LOAD OF CALIFORNIA COPPER ORE.—The largest load ever hauled into this city, we believe, says the *Stockton Independent*, came in on Saturday, July 14th, from Copperopolis. The team consisted of twenty-two mules, and there were five wagons containing the enormous amount of forty-two thousand pounds, or *twenty one tons of copper ore, from the Union Mine.* This is the heaviest load, we are told by ten thousand pounds, that ever came into Stocton. The team and wagons reached the length of a block, and were objects of no little interest as they passed through the streets.

Brevities.

—Two persons shut up in a room of ten feet each dimension will pass all its aërial contents through their lungs in 24 hours.

—500 cubic feet of air pass through the human lungs in 2 hours.

—A Mr. Glaisher has discovered a physical indication of cholera in the atmosphere, in infected districts, which is visible to the eye. It is represented as being a "blue vapor or haze." He also assumes to detect fever districts by a "yellow mist or haze," which in both cases hovers or is suspended above the afflicted regions. The sanitary condition of a neighborhood may be known hereafter, by the odor or tint of its atmosphere.

—The geological character of the strata beneath the English channel, from that country to France, has been discovered by an engineer named Hawkshaw, and he declares it is possible that a tunnel may be built connecting the two countries without meeting with any obstructions impossible to overcome.

—The following shows the aggregate value of manufactures in the undermentioned cities for the year upon the last return: New York, $159,107,369; Philadelphia, $135,979,777; Cincinnati, $46,995,062; Boston, $37,681,808; Baltimore, $21,083,517; New Orleans, $11,373,295; St. Louis, $27,610,079; Chicago, $13,555,671.

—Compressed Peat promises to be valuable for other uses besides fuel. A patent has been taken out, by which picture frames, book backs, card paper, mouldings and decorations for furniture, brick for building purposes, fronts for stores and dwellings, and all other purposes in which bone india rubber and gutta percha are component parts, can be manufactured from peat.

—A scientific way of lighting pipes, and cigars has been recently introduced in Paris under the name of *poudre de feu.* It consists of pyrophorous, which is preserved in a small tin case with a narrow orifice. When a little of this black powder is poured out on the end of a cigar, or on the tobacco in a pipestem, and then gently breathed upon, it becomes incandescent, and is in a condition to light said pipe or cigar. What next? Why there are little tubes sold containing pellets of potassium, and they are recommended to the juvenile Parisians as a means of forming splendid Gregorian fire works on any convenient piece of water!

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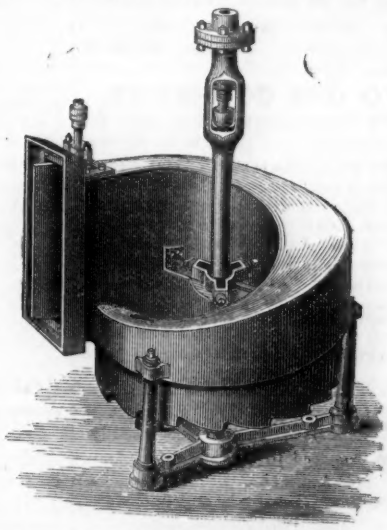

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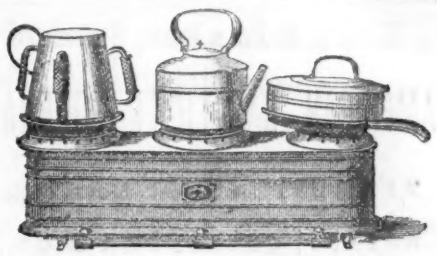

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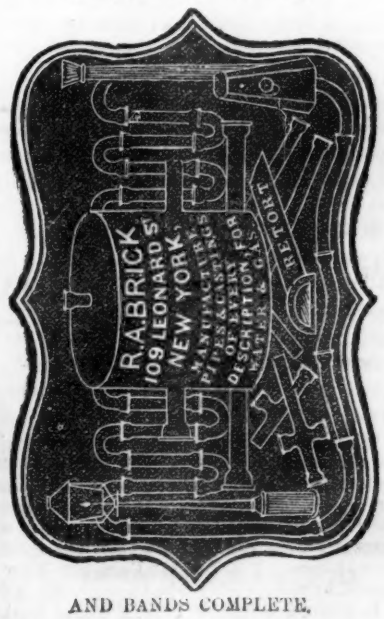

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EDITORS AND PROPRIETORS.
Profs. PARTZ & BUCK, Consulting Chemists.
MONDAY, SEPTEMBER 17, 1866.

WISHING TO MAKE this Journal an organ of intelligent discussion to those of our readers who may wish to gain or give information on the subjects to which its colums aad devoted, the publishers solicit letters from all among them who make the study of those subjects a pleasure, or a profession.

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Gold Mines of the Atlantic.

Owing to the improvements of the last few years in mining, and especially in metallurgy, the art of extracting the precious metals from their most refractory ores, sulphurets, arsenates, etc., by the different processes of roasting, desulphurizing, pulverizing and amalgamation, quite new and astonishing results have been arrived at, giving a percentage over the old methods in the amount of metal obtained of from 25 to 400 per cent., and, in some cases, much more.

It is natural to suppose that such improvements would bring into notice and give a value to mines and mining regions which had previously been abandoned or left unnoticed, on account of their supposed poverty, professedly, but in reality owing to the difficulty and expense of separating the metals from their ores, and the small proportion saved by the methods then employed.

Such has been the case with our Atlantic gold fields especially, and we are glad to see, as the following letter indicates, that a new interest is being taken in prospecting and operating our "home mines," which, compared with the distant regions of the West, have advantages of proximity to capital, cheaper labor, cheaper living, a better civilization, and many others which the mind of the capitalist seeking for investment, or of the practical miner looking for tangible results, will readily suggest.

The letter is dated at Bridgewater, Windsor Co., Vt., and though private, and not intended for publication, we have been permitted to make a few extracts from it. The famous "Plymouth diggings" which have yielded wash gold for many years, are situated in the adjoining town, and the "color" can be obtained in any of the streams thereabouts, so it is said. The letter says:

"Everything in the mining line here is taking an upward tendency, and there has not been a day for the last ten days but there has been parties here for mining territory. We have agreed with three different parties within the last three days to take leases and form companies which will commence work at once. The Taggart Company have commenced to make their roads to-day. Mr. Allen, of A. L. Allen & Co., New York, is still at work with good prospects of success. Mr. Washburne is now testing ores for the Plymouth Co., with a beautiful show of gold; and all the different lodes he has worked have proved much better than he expected.

"Prof Shepperd, from New Haven, has been up here to visit mines, and says they are looking much better than he expected to find them. I took him up to the Daily mines, and he says that one, if not both of them, are very strong lodes. He thinks this will be a successful mining district; and finally, everything in the mining line is looking better than it has at any time since I came here, which is about two years."

From other sources we learn that the Vermont Co. are about to commence operations, and have 100 tons of ore, taken out last fall, which gave by assay from $20 to $200 and $250 per ton.

Atlantic Co. have out 30 tons with good assays.

Pioneer Co. have erected a mill with 20 stamps, and have over 200 tons of ore out and ready for working. Mr. Bradbury is the superintendent of these works, and is sanguine of a large yield from the main shaft or mine. The assay of this mine has been all the way from $20 to $500 per ton of ore. H. H. Moulder is the President of this Company, and under the joint and efficient management of himself and Mr. Bradbury, (both being old California miners,) the matter of Vermont mining in a large way will be fully tested, in that section at least, and there seems no reason to doubt a favorable result, judging from the character of workings, and tests that have been made thus far.

We are obtaining reliable reports of mining operations in Maine, Virginia, North Carolina, etc. which will appear in due time.

Columbian Iron Works, Brooklyn.

We lately had the pleasure of looking through the Columbian Iron Works, of Brooklyn, by the courtesy of Mr. Edwin S. Taylor, one of the proprietors, and we were impressed with the order and workman-like manner in which the different departments were conducted.

A noticable feature in these works, is the variety and novelty of the work done. It is seldom that owners of large establishments have the enterprise and nerve to step aside from the regular routine of manufacturing to give attention to new inventions; or take an interest in the field of improvement sufficiently to encourage the inventor, and assist to get his improvement into a tangible shape and practical operation, wherein really, its success depends. In this respect the proprietors are especially deserving of commendation.

The works are quite extensive, and will, when extended as contemplated, cover about fifteen lots, or nearly an acre of ground. Castings for Iron Buildings, Store Fronts, Columns, Girders, Gas-works, &c., Steam Engines, Mills, Mining, and all kinds o machinery, are here made, and pass through the different finishing processes and departments till they are turned out, complete in every respect.

Deserving of notice, are the powerful beam pumps and other machinery in process of construction for the N. Y. Floating Dry Dock Co., which is being put together at the foot of Court-st., preparatory to being taken to its destination in Jersey City.

This is to be the largest dock of the kind in the country. The machinery contract with Messrs. Taylor & Sons alone, will amount to $75,000 or $100,000.

Prof. Wilson's desulphurizers for reducing auriferous ores are manufactured here. An important feature in this apparatus consists in covering the large iron shaft and worm which agitates the ignited ores in the combustion chamber with an indestructible porcelain enamel, to prevent oxydization.

This is the largest piece of enameled iron ever produced in this section, and is made by a secret process in which Mr. James A. Taylor is especially interested. Hydraulic Oil Presses, of immense power and improved mechanism are another novelty. These are so arranged that the cylinder fills or exhausts with great rapidity, and by an automatic apparatus, changes to the small pump piston when the increased power is most required.

Hosea Ball's Peat Machine is another novelty manufactured here. It consists of a large conical cast iron hopper and tube, in which operates a powerful wrought-iron screw or worm, which serves to both knead and mix the peat and force it into a compact form. These machines are being operated by a Peekskill Peat Co.

Mr. I. N. Stanley's improved Hydraulic Gas-Main is another useful and valuable apparatus which is being manufactured here. It has been formerly illustrated and described in this Journal.

The Columbian Iron Works are owned by William Taylor & Sons, and are situated at Nos. 11, 13 and 15 Adams-st., Brooklyn, L. I., and employ about 100 men in the diffeaent departments of models, foundry, blacksmithing, machine-shops, etc.

The works have been long established, and do an extensive and varied business, and the proprietors have earned for themselves, by energy and enterprise, an extended and favorable reputation.

Peat in Massachusetts.

Massachusetts is likely to prove one of the richest peat producing States in the Union. It is found to contain a peat area of a magnitude sufficient to produce 25,000,000 cords of peat fuel. It abounds in every township in the State in greater or lesser quantity, and of varying quality, some of which when prepared and pressed resembles bituminous coal in character and appearance. This is especially the case upon Cape Cod, where it is found from ten to forty feet in depth.

A company have just erected peat machinery and commenced manufacturing, at Spring Hill, near Sandwich, where exists a large tract of superior peat land. This is a great boon to that section, as fuel has been very scarce and dear there for many years. We would suggest that the large Glass Works at Sandwich arrange their furnaces for this kind of fuel, which will greatly reduce the expense of manufacture.

SCHOOL OF MINES, COLUMBIA COLLEGE.—It is with pleasure we call the attention of our readers to the advertisment, in another column, of the School of Mines, Chlumbia College, situated at East 49th-st., New-York. This Institution has obtained a deservedly high reputation. F. A. Barnard, S. F. D., LL. D., is President, and Prof. C. F. Chandler is Dean of the Faculty. The names of these gentlemen, together with the other members of the Faculty, is sufficient guarrantee of the excellence of this Institution.

A three-years course confers the degree of Engineer of Mines or Bachelor of Philosophy, and persons not candidates for degrees are admitted without examination, and may pursue any or all of the subjects taught.

☞ We trust our readers and patrons will find both pleasure and instruction in the perusal of the series of original articles and translations from the French, German, etc., commencing with this number of the Journal, by Prof. Henry Wurtz, whose reputation for ability, learning, and scienifiic attainments is too wide to need mention here.

☞ We are in reciept of the second paper on the Plattner process of roasting ores, translated from the German by J. H. Tiemann, Esq., but too late for publication in this number. It will appear in our next issue.

Dufrene Garden of Art.

We have received the prospectus of an enterprise projected by the Dufrène Garden of Art Company, incorporated with a capital of $1,000,000 in 10,000 shares.

Its object is to obtain a tract of land embracing several acres, situated between 10th and 11th Avenues and 60th and 66th-sts., accessible from all parts of the city, contiguous to Central Park, and commanding a fine view of the Hudson River and the opposite shore. It will be Central Park in miniature, with the addition of concert, lecture and public meeting halls, conservatory, ball room, baazars, dining, ice-cream, confectionary and billiard rooms, etc. It will have summer-houses, grottoes, fountains, cascades, and an infinitude of models, statuary and works of art of rare and unique design.

The projector, M. Dufrène, has assigned to the Company the entire plant (and patents for manufacturing) with a large assortment of models and designs of historical and mythological interest and specimens of artistic works which he has obtained from all parts of the Old World.

The President of the Company is Joel Wolfe, Esq., who is well and favorably known to the financial public, as are also the several trustees. The enterprise has the merit of both novelty and usefulness, and if judiciously carried out, we bespeak for it a great success. The office of the Company is at 119 Broadway, Room 9.

New Books.

We have before us a work entitled "Peat, or the Treatment and Uses of Peat and Peaty Material:" by J. Burrows Hyde, C. E.: published by Bailliere Brothers, 520 Broadway.

The subject matter of this instructive work originally appeared as a series of articles in this Journal. It has now been revised and re-issued in a neat and convenient book form (12 mo.) of something less than 100 pages. Price 50 cents.

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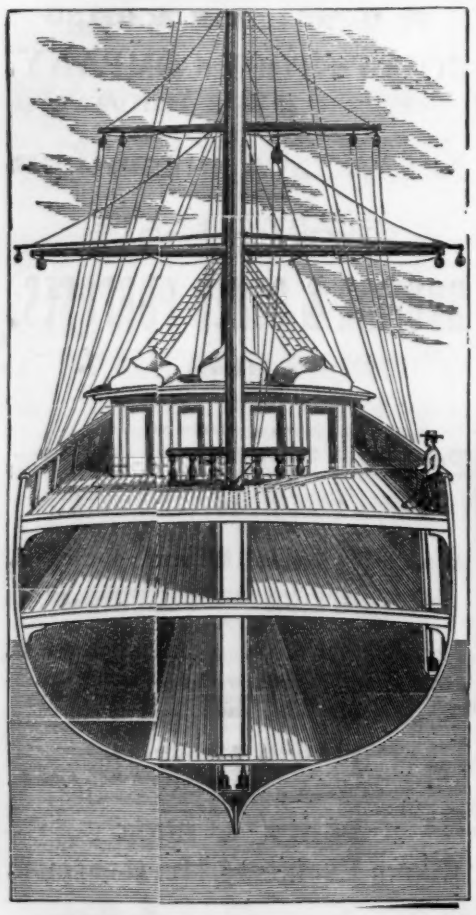

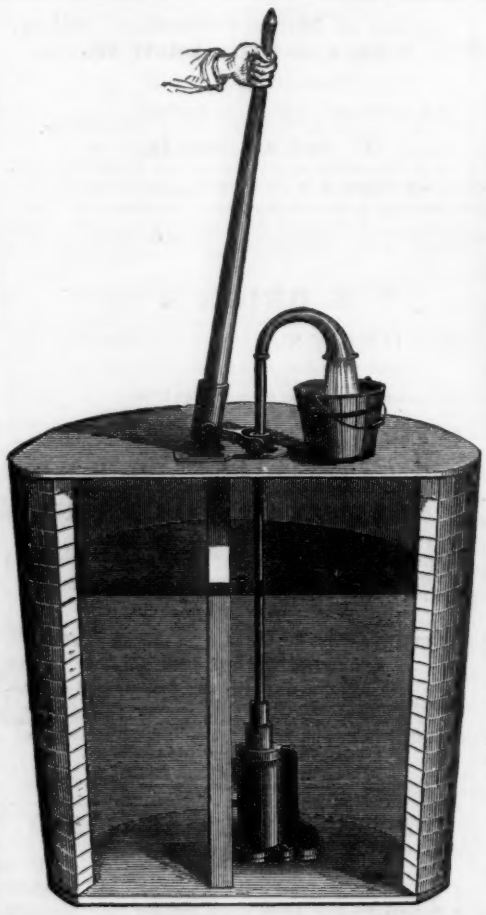

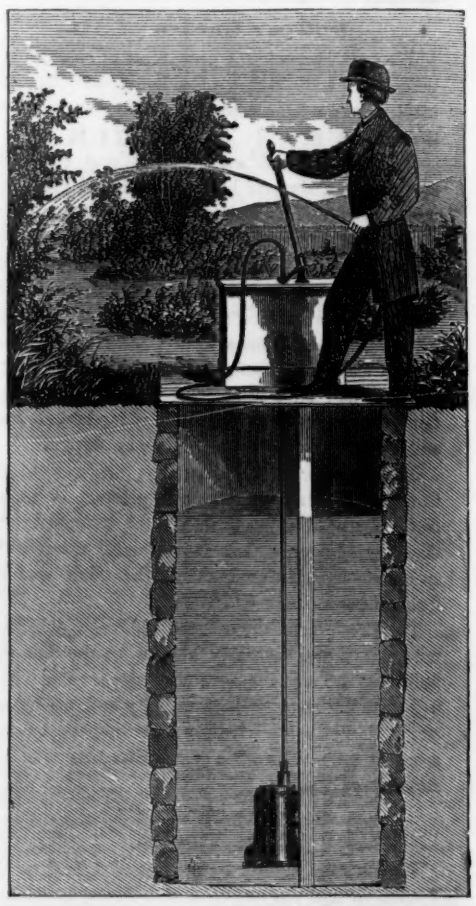

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The experience of the last five years have clearly proved at what great expense, both in first cost and freight, it has been necessary to be at to secure the proper means of expelling water from the mines, quarries, etc. With this Pump an immense saving is effected in both instances, as in first cost it is much less than other Pumps of the same capacity and power.

Its principle is that of a Double-acting Force Pump, with a heavy double-acting piston cast in one piece, and a double-acting iron valve within the same, without the use of leather valves or any packing whatever.

DIRECTIONS FOR ADJUSTING PUMPS.

1st. Find the exact measurement of the well or cistern from the extreme bottom to the top or curb, after which make such an allowance as may be required, above the curb or top, as will accommodate the sized vessel required to be used, and in respect to the quantity of pipe required, always deducting for the length of the Pump and the space between the bottom and the Pump. 2d. Provide a plank, to which the Pump must be secured, not less than seven inches wide by two or two and a half inches thick, which should reach from the bottom to the top of the well or cistern, always placing the plank on the side of the well or cistern. 3d. Before putting the plank into a well or cistern, fit and bolt the Pump to the plank, and screw the pipe firmly in, taking care to have the Pump not less than one foot from the bottom of a well, nor less than six inches from the bottom of a cistern. Yet, if the water be six feet deep in a well, then adjust the Pump three feet from the bottom, and in like proportion as the case will permit, always being governed by the depth of water in the well, and always observing the necessity of securing the plank at the bottom of the curb, by braces across the well, and standing perfectly plumb and solid under the platform or covering of the well, when the fulcrum can be fastened to the platform, taking care to give the pipe free action when in motion.

MANHATTAN

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MAURER & WEBER,

(Of the late firm of B. Kreischer & Co.)
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Office & Works in 15th street, Avenue C,

MANUFACTURERS OF

Fire Brick and Tiles,

OF ALL SHAPES & SIZES,

Fire Mortar, Clay and Sand.

☞Articles of every description made to order, at short notice. (135

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GAS RETORTS, TILES and FIRE-BRICK of all shapes and sizes.
FIRE MORTAR, CLAY, and SAND.
Articles of every description made to order at the shortest notice.
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AN INDESTRUCTIBLE COATING FOR

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It consists of seventy-two parts Oxide of Iron, and twenty-eight parts Cement Lime Stone in the one hundred pounds.

It has much more body than red or white lead. It is warranted perfectly water and fire-proof and to withstand a greater heat on metals, without scaling, than any other paint in use.

It is a perfect cover for all kinds of iron, tin, or wood-work, out-houses, and canvas coverings. It prevents and arrests the corrosion of metals, and is not affected by the action of salt, gases, acids or ammonia.

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225 lbs.	26 inches.	$56 00	$15 00	$71 00
275 "	42	69 00	18 00	87 00
375	36	94 00	22 00	116 00
450	34	112 00	25 00	137 00
600	02	150 00	30 00	180 00
750	39	188 00	35 00	225 00
1,000	64	250 00	42 00	292 00
1,200	48	300 00	45 00	345 00
1,400	50	350 00	50 00	400 00
1,600	52	400 00	54 00	454 00
1,800	55	450 00	60 00	510 00
2,000	58	500 00	62 00	562 00
2,500	60	625 00	72 00	697 00
3,000	63	750 00	85 00	835 00
3,500	66	875 00	87 00	962 00
4,000	69	1,000 00	100 00	1,100 00
4,500	72	1,125 00	113 00	1,238 00
5,000	75	1,250 00	125 00	1,375 00

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These Bells are fitted with Yoke, Standard's Crank and Bolt, complete for use.

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50	12	12 50
75	16	18 75
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150	20	37 50
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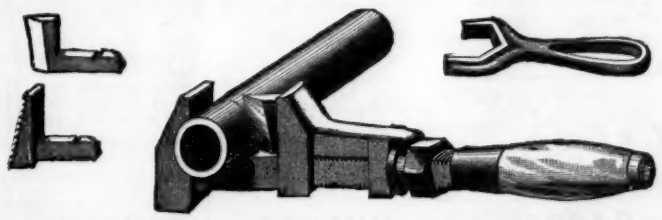

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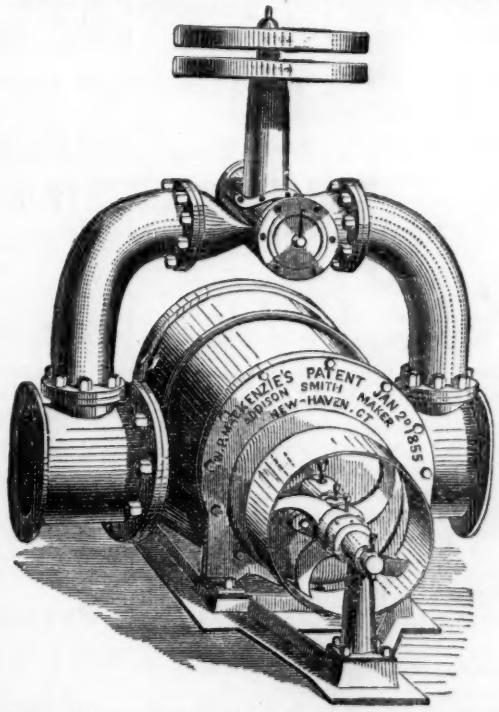

They are made to pass from 4,000 to 150,000 cubic feet of gas per hour; will increase the production and illuminating power of the gas, and add very much to the durability of the retorts, either clay or iron. The Compensator obviates entirely the necessity of water-joints, is compact, durable, cleanly, not liable to get out of order, self-acting, quiet, and certain in its operation.

We are also sole proprietors and manufacturers of the

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The Blower is a Force Blast machine, durably built, and can be driven with one-third the power required to drive the ordinary Fan. The Cupolas are manufactured in sizes to melt from 1 ton to 20 ons per hour, will save one quarter of the time required by the old style Cupola, and 33 per cent. fuel. Address

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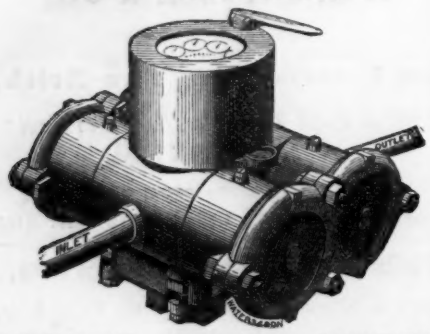

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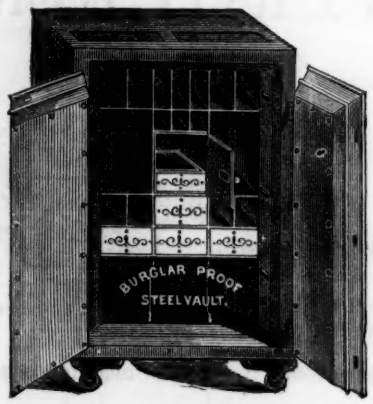

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4	21½	21½	13	150	3	38	24	16	350
5	26	18	13	220	4	44	24	16	400
6	22½	26	14	250	5	44	32	17	500
7	26	21	14	240	5½	40	38	17	525
8	29	24	14½	300	6	50	32	17	550
9	32	22	14½	300	7	50	38	17	600
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STOVES AND RANGES.

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Send for Illustrated Circular. (136

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FOR

Families and Manufacturers,

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We offer the public the simplest, strongest and best Knitting Machine in the world.

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HIGHEST PREMIUM

Shuttle Sewing Machine

Has only to be seen and operated to be Appreciated.

Call and see for yourself before purchasing. Please bring samples of various kinds of thread, (such as is usually found at stores,) and various kinds of fabric, which you know the former most popular Sewing Machines either cannot work at all, or, at best very imperfectly.

SUPERIORITY.

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1st It runs easily and rapidly, and is so constructed as to endure all kinds of hard usage.

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3d. No imperfect action of the feed at uneven places in the work.

4th. The Weed-stitch catches of itself, and will sew from the finest lace to the heaviest leather, and 200 cotton to coarse linen thread.

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with so little trouble, makes it equal, if not superior, to six machines combined; for instance, it Binds, Hems, Tucks and Sews on the band at the same time, and in face, the

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No. 2. Oil Black Walnut, Ornamented with Hemmer.	$60,00
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WEED SEWING MACAINE Co.,

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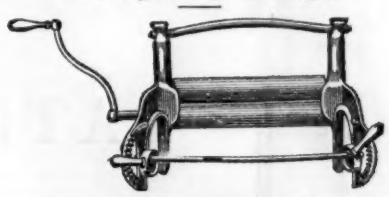
PUTNAM'S CLOTHES WRINGER.

IT IS THE ONLY RELIABLE

Self-Adjusting Wringer.



No Wood-work to Swell or Split. No Thumbscrews to get out of order. Warranted with or without Cog-wheels.

It took the First Premium at Fifty-seven State and County Fairs in 1863, and nearly double that number in 1864, and is, without an exception, the *best* Wringer ever made. Patented in the United States, England, Canada, and Australia. Agents wanted in every town, and in all parts of the world. Energetic agents can make from $3 to $10 per day.

WHAT EVERYBODY KNOWS, VIZ.:

That Iron well galvanized *will not rust.*

That a *simple* machine is better than a complicated one.

That a Wringer should be *self-adjusting, durable, and efficient.*

That thumb-screws and fastenings cause *delay* and *trouble* to regulate and keep in order.

That wood soaked in water will *swell, shrink,* and *split.*

That wood-bearings for the shaft to run in *will wear out.*

That the Putnam Wringer, with or without cog wheels, will *not tear the clothes.*

That cog-wheel regulators are not essential.

That the Putnam Wringer has *all* the advantages, and *not one* of the disadvantages above named.

That all who have tried it pronounce it the *best* Wringer ever made.

That it will wring a thread or a bed-quilt *without alteration.*

We might fill the paper with testimonials, but insert only a few to convince the skeptical, if such there be; and we say to all, *test* Putnam's Wringer. Test it *thoroughly* with *any* and any others, and if not entirely satisfactory, return it;

PUTNAM MANUFACTURING CO.—*Gentlemen:* I know from practical experience that iron well galvanized with zinc will not oxydize or rust one particle. The Putnam Wringer is as near perfect as possible, and I can cheerfully recommend it to be the best in use. Respectfully yours,

JOHN W. WHEELER, Cleveland, O.

Many years' experience in the galvanizing business enables me to indorse the above statement in *all particulars.*

JOHN C. LEFFERTS, No. 100 Beekman St.

NEW YORK, *January,* 1864.—We have tested Putnam's Clothes Wringer by practical working, and know that it will do. It is cheap; it is simple; it requires no room, whether at work or at rest; a child can operate it; it does its duty thoroughly; it saves time, and it saves wear and tear. We earnestly advise all who have *much* washing to do, with all intelligent persons who have *any,* to buy this Wringer. It will pay for itself in a year at most. HORACE GREELEY.

PRICES—$8, $9, and $10.

Sample Wringers sent, express paid, on receipt of price.

Manufactured and sold, wholesale and retail, by

PUTNAM MANUF'G CO.,

13 PLATT STREET, New York,
BENNINGTON, Vt.,
CLEVELAND O.

WATER AND GAS PIPE.

The Boston Bituminized Pipe Company,

Are now manufacturing and prepared to take orders, for their PATENT PIPE, (from 2 to 12 inches in diamter,) as a substitute for Iron, Copper, Lead, &c., for the conveyance of WATER, GAS, SEWERAGE, &c. &c.

From the testimonials received, and the entire satisfaction it has given those having it in use, we feel warranted in claiming for this pipe over that of any other, the following advantages, viz:

It is much CHEAPER—has great strength (it having been tested to 500 lbs. to the square inch,) combined with LIGHTNESS, costing less for transportation; the joints are easily made and perfectly tight; it does not expand or contract from different degrees of temperature, and is free from *CORROSION* or *CONCRETIONS* forming; does not impart any taste or injurious properties to water, and as far as anything can be said to be indestructible, we deem this to be.

As a GAS PIPE, we say it has no superior. The Lowell Gas Light Co., purchased and laid some of this Pipe last year, and have likewise subjected samples to a test of four month's duration in their dry lime purifiers, with the most satisfactory results, in fact establishing beyond a doubt, its perfect adaptation to the wants and requirements of Gas Companies, specimens of which, together with the statement of S. Cushing, Esq., Agent Lowell Gas Light Co., who made these experiments. I shall be pleased to show, and give all other needed information, by applying in person, or by letter, to JOHN L. WEBSTER, Treas.,

Boston Bituminized Pipe Co.,

127] No. 2 Pearl st. House, Boston.

AMBROSE SPENCER GILCHRIST.

(LATE CAPT. U. S. V.,)

CIVIL, MINING

AND ARCHITECTURAL ENGINEER,

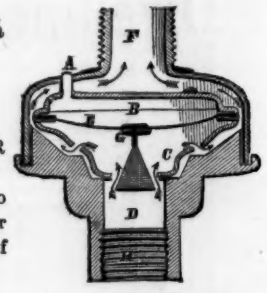
No. 200 BROADWAY, Office 12.

New York.

NOTICE TO GAS COMPANIES AND GAS CONSUMERS.

THOMPSON'S PATENT GAS CONTROLLER,

The only Self-Acting Gas Controller, Regulator, and Burner Combined which has ever been invented, or known to science.



THE PRINCIPLE UPON WHICH THE THOMPSON'S AUTOMATIC GAS CONTROLLER works is one well known to mechanics, and is simple in its operation.

Within the circumference of a small cylinder below the burner is placed a conical valve attached to a movable diaphragm. The diaphragm rises or falls as the pressure of gas from the pipe is lesser or greater, and the valve acts upon the valve-seat with such regularity of movement that in a difference of from five-tenths of an inch pressure to five inches the variation in flame is hardly perceptible.

The simplicity of its machinery and the nature of the material used in its construction insure its regular action and durability.

In consequence of the uniform quantity of gas which passes the Controller to the burner, there is no waste, and a steady, soft flame is produced, which is important to all who read, write, or work by gas-light. The unsteady flickering blaze which invariably exists when the pressure of gas is beyond the requisition for consumption, has injured the sight of thousands who have been subjected to it.

For street lamps these Controllers are especially valuable, because the pressure varies materially during the night, and in consequence there is a waste of gas, and the light variable.

Improvements have lately been made in the mechanism of the Controller which makes them almost a perfect meter to each ourner, and they are now offered to be public with more confidence than ever before.

Reference is permitted to the following named gentlemen—

Col. CHAS. ROOME, President Manhattan Gas Company, N. Y.
C. H. SAND , Esq., President Metropolitan Gas Company, "
J. H. ADAM, Esq., President New York Gas Company, "
PETER COOPER, Esq., Cooper Institute, "
JOHN A. DUFF, Esq., Olympic Theatre, "

GEO. H. KITCHEN, Inspector of Gas Meters, N. Y
A. L. BOGART, Esq., Gas Engineer.
Col. J. A. SABATTON, Engineer Manhattan Gas Company.
Col. A. J. WHITE, Engineer Metropolitan Gas Company.
J. K. SIMPSON, Esq., Engineer Cooper Institute.

Persons interested are invited to call at the Office, 28 Liberty street, where they can see the operation by pressure guage and test meters.

M. L CALLENDER, Agent
Office, 22 PINE STREET.

JOSEPH LEES, San Francisco, Agent for California and Oregon.

THE AMERICAN METER CO.

Organized under the General Manufacturing Laws of the State of New York

SAMUEL DOWN, PRESIDENT. HENRY CARTWRIGHT, VICE PRESIDENT. RICHARD MERRIFIELD, SECRETARY AND TREASURER

TRUSTEES.

SAMUEL DOWN, WILLIAM HOPPER, R. H. GRATZ, HENRY CARTWRIGHT, RICHARD MERRIFIELD.
THOMAS C. HOPPER, *Superintendent at Philadelphia.*

This Company is now prepared to furnish WET AND DRY GAS METERS, STATION METERS, GOVERNORS, PRESSURE INDICATORS & REGISTERS, SERVICE and METER COCKS, and all other articles in their line appertaining to the use of Gas-Works.

The combination of Mechanicel and Scientific Skill, and the long experience of the several members of the Company, is a sure guarantee of durability, accuracy and excellence of workmanship. Orders addressed

AMERICAN METER COMPANY,

West Twenty Second Street, New York. Arch and Twenty-Second Streets, Philadelphia. No. 23 West Street, Boston will meet with prompt attention.

Harris & Brother, Practical Gas Meter Manufacturers,

Continue, as heretofore at their old Establishmen, No. 1117 CHERRY ST., PHILADELPHIA, to Manufacture

WET AND DRY GAS METERS, and all kinds of GAS APPARATUS, and furnish all articles appertaining to the use of Gas Works. ☞OUR WORK WARRANTED—Satisfaction Guaranteed. Orders respectfully solicted, and promptly attended to, by
HARRIS & BRO., No 1117 Cherry st., Philadelphia.

Messrs. Harris & Brother, Philadelphia Gas Works, February 14, 1857.

Dear Sirs;—I take great pleasure in stating that we have found your meters to register with entire correctness, and to be generally of very good quality—the number furnished by you to these works is over 5,000.
JOHN C. CRESSON, Engineer;

Office of the Gas Light Company of Augusta, Ga., March 6th, 1858.

This is to certify that having used meters manufactured by Messrs. Harris & Bro., for the last nine years, we do not hesitate to state they have given entir8 satisfaction in point of wokmanship and accuracy of registration; they are surpassed by none, and equaled by few manufactories in the Union; we have used meters made by other establishments but our preference is in favor of those made by Harris & Bro., of Philadelphia, Pa.
G. S. HOOKEY, Superintendent of the Gas Light Company of Augusta, Georgia.

Messrs. Harris & Brother, Philadelphia. Philadelphia, March 4, 1858.

Gentlemen—We take great pleasure in bearing our testimony to the very superior character of the meters we have received from your establishment. We have always found the workmanshipall we could desire, while the accuracy and reliability of their measurement have always been satisfactory. We have used meters made by other parties, and none have given as entire satisfaction as those received from you. We are, gentlemen, very truly, yours, BIRKINBINE & MEARS.

Messrs. Harris & Brother. March 14, 1857.

Gentlemen—For the last ten years we have used in the Philadelphia Gas Works, meters made in your factory, and take pleasure in expressing my opinion to their correctness. On several occasions I have taken your meters apart, and found the material used in the manufacture of the same, to be as fine quality as is used in those imported from Europe, or made by any of the manufacturers in the United States. Respectfully Yours, GEORGE WIEGAND, Inspector of Gas Fittings, Philadelbia

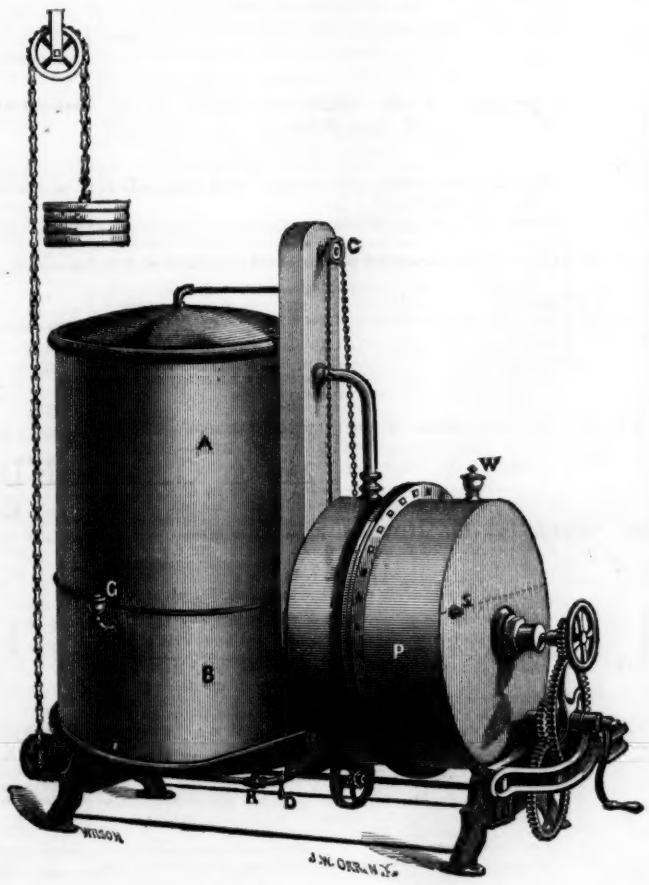
EMPIRE STATE GAS MACHINE,

LEVI STEVENS' PATENT, FOR SUPPLYING,

Dwellings. Stores, Factories and Public Buildings.

THE GAS GENERATED BY THIS MACHINE

Is a mixture of the vapor of hydro-carbon with common air. The mechanical devices employed are such as, from a long experience and critical examination into the nature of the element brought into use, seem best adapted to secure a certain and satisfactory result. GASOLINE, the liquid employed, is the more volatile portions of Petroleum, of a specific gravity of 0.6587. This liquid exposed to the action of this machine is vaporized, and a close mechanical mixture of the vapor with common air is effected. The value of the gas produced, its permanency, its illuminating quality, and freedom from liability to condensation, depend almost entirely upon the perfect and uniform character of this mixture. Hence the great importance of mechanical means adapted to secure all the conditions requisite in a Portable Gas Machine.



THE PRICE-LISTS OF MACHINES COMPLETE;

(Boxed and delivered on the cars at the Manufactory.)

No. 1,	$150,	5 Argand Burners.
do. 2,	250,	10 do. do.
do. 3,	350,	20 do. do.
do. 4,	450,	35 do. do.
do. 5,	600,	60 do. do.
do. 6,	1,000,	125 do. do.
do. 7,	1,500,	250 do. do.

This machine will produce the most brilliant and steady light without Fire or Heat, and is warranted to operate in every respect as represented.

The EMPIRE STATE GAS MACHINE is the most SIMPLE and EFFECTIVE MEANS KNOWN FOR PRODUCING GAS WITHOUT HEAT.

Its action is automatic, feeding itself with constant supplies of Gasoline, thus securing steady and uniform supplies of Gas. The gas produced is equal to the best known Illuminating Gas. It is as economical as any other, and is adapted to a wider range of use for Lighting, Heatin and Mechanical purposes. It will maintain its illuminating power under as great a degree of cold as any other. It is free from danger with the ordi nary care in using gas. Its remarkably pure and steady light is pleasant for the eye. It renders it easy for persons living remote from street gas pipes to enjoy the luxury of a pure GAS-LIGHT, at a COMPARATIVELY SMALL COST, AND WITH LITTLE TROUBLE.

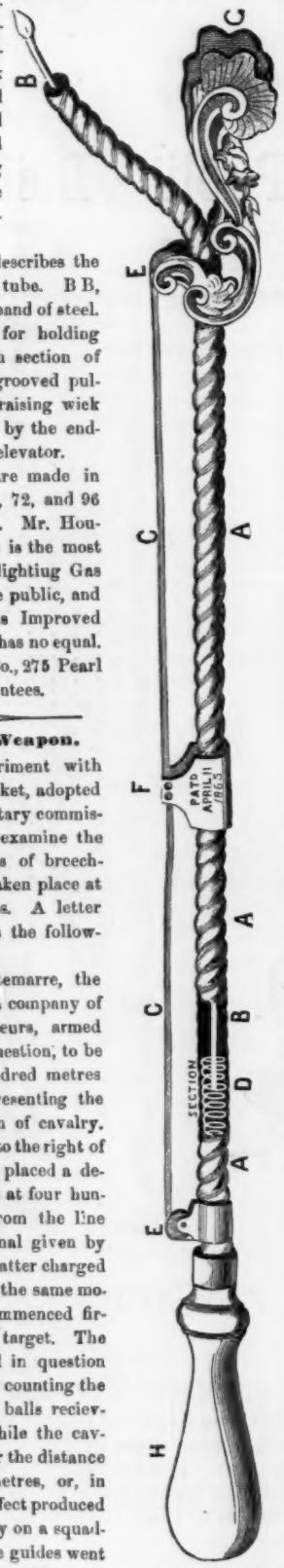
☞The public are invited to witness its operations at our store. GASOLINE will be supplied by us, at market prices, or may be obtained from the various other sources of supply now going into operation.

MITCHELL, VANCE & Co., 620 Broadway, New York,

Manufacturers of Chandeliers and Gas Fixtures of every description. Also, Chandeliers, Brackets, Lamps, &c., for Coal Oil, adapted to Churches, Public Buildings, Dwellings, &c.

Houchin's Patent Gas-Lighting Torch.

We give herewith a cut illustrating Houchin's Patent Gas Lighting torch, which will recommend itself to all who have experienced the annoyance of using match, paper-lighter, or other impromtu method of lighting gas, at the risk of burned and soiled fingers, or of injured eyes, furniture and apparel from falling sparks, and worse still, the risk of losing one's temper.



The following describes the cut: A A, brass tube. B B, wick. CC, endless band of steel. D, spiral elevator for holding wick, seen through section of of tube, A. EE, grooved pulleys. F, slide for raising wick in tube connected by the endless band with the elevator.

These torches are made in four sizes of 30, 48, 72, and 96 inches respectively. Mr. Houchin considers this is the most perfect article for lightiug Gas ever offered to the public, and when used with his Improved Wax Gas-Tapers it has no equal. T. W. Houchin & Co., 275 Pearl street, are the patentees.

Formidable Weapon.

A curious experiment with the Chassepot musket, adopted by the French military commission appointed to examine the different inventions of breech-loaders, has just taken place at the camp of Chalons. A letter in the *France* gives the following account:

"General d' Autemarre, the president, ordered a company of eighty foot Chasseurs, armed with the gun in question, to be placed at four hundred metres from a target representing the front of a squadron of cavalry.

In the rear and to the right of the Chasseurs was placed a detachment of Guides at four hundred metres also from the line of fire. On a signal given by the President the latter charged at a gallop, and at the same moment the others commenced firing by files at the target. The object of the trial in question was to ascertain by counting the shots fired and the balls recieved by the target while the cavalry was going over the distance of four hundred metres, or, in other words, the effect produced by a fire of infantry on a squadron charging. The guides went over the distance in thirty-two seconds—an extraordinary rapidity for horsemen heavily accoutred and in a troop—the infantry fired during the same period three hundred and twenty shots, and the target was struck one hundred and sixty times, or by more than fifty per cent. of the bullets discharged. The experiment was repeated the second time, and with exactly the same result. The effect of fifty per cent. of the shots is terrible; also, as in half a minute eighty Chasseurs sent three hundred and twenty bullets at the enemy, that is exactly four to each man. If eighty horsemen had really charged those eighty riflemen, they would have been all struck down on the way."

PATENT CLAIMS.

Pertaining to Gas, Mining, Petroleum, Water, etc.

For the two weeks ending Sept. 5, 1866.

57,479—Apparatus for Drying Peat.—Hezekiah Bradford, New York City.

I claim, First, A series of cars moved gradually through a heated chamber, and provided with platforms or ranges holding the peat to be dried and then cooled or partially cooled by the action of the air, substantially as set forth.

Second, The cars for drying peat formed of a series of sectional platforms, in the manner specified, to facilitate the reception and discharge of peat, substantially as set forth.

57,579—Tank for Petroleum.—Marius C. Church, Parkersburgh, W. Va.

I claim, First, The combination of the tank, A, of the chamber, D, provided with the safety-valve, C, and connected by orifices as described, and for the purpose of transportation and storage of petroleum or other liquid.

Second, The tank, A, segment shaped in transverse section, the flat upper surface forming the floor of a secondary chamber.

57,489—Apparatus for preparing Peat.—Louis Elsbery, New York City.

I claim the combination in a machine of the following implements, viz: the agitator, agitator chamber, and steam-pipe, all operating in combination substantially as set forth.

I also claim the combination in a machine of the following implements, viz: the chamber for the material, steam delivery-pipe, and reciprocating piston-press, all operating in the combination substantially as set forth.

I also claim the combination of the piston and piston-chamber of the press, with a discharge passage composed of sections, all operating in the combination substantially as set forth.

I also claim the combination of the piston and piston-chamber of the press with a discharge passage, whose interior is tapering, all operating in the combination substantially as set forth.

57,491—Apparatus for Generating Gas.—J. J. Ensley, New York City.

I claim the combination of the perforated charge cylinder or cylinders, d, open at the inner end, and the horizontal close retort cylinder or cylinders, c, substantially as and for the purpose herein specified.

I also claim the condensing chambers, k k, connected by the pipes, l l, and provided with discharge-cocks, m m, when used in combination with the inclosing water-tank, B, substantially as described.

I also claim the combination and arrangement of the tight barrel, q, and pipes, p, r, with the pipe n, for the purpose of pumping off the condensed water that gathers without admitting air or allowing escape of gas, substantially as set forth.

57,502—Apparatus for Generating and Burning Gas from Petroleum, Naphtha, etc.—Mark E. Hanson, Newport, Me.

I claim the herein-before described arrangement of a gas generator and burner, consisting of the generator, a a, with the ribs, b, the eduction-pipe, d, perforated cap, f, together with the hinged spring, h, and pin, i, the said several parts being constructed, and the whole combined for use, substantially as and for the purpose set forth.

58,551—Apparatus for Generating Illuminating Gas.—Henry B. Meyer, Philadelphia, Pa.

I claim, First, The arrangement of the chambers, A, B, C, D, in their relation to each other, for the purpose specified.

Second, In combination with the chambers, B B, I claim the pipe, b, and valve, b', constructed and operating substantially as and for the purpose set forth.

Third, the herein described construction and arrangement of the pumps, E, F, the same being adapted to the use of water as a packing, as specified.

Fourth, Such a structure of the pump, as shown in Figure 18, whereby it is adapted to the use of quicksilver as a packing, as specified.

Fifth, In combination I claim the perforated coil, C, double disk, d, and perforated disk, I, arranged to operate as specified.

Sixth, In combination with the chambers, A, B, C, I claim the glass-tube indicators, a', b''', as and for the object set forth.

Seventh, Operating the valve, b', by means of the float, B', as and for the purpose herein specified.

Eighth, The arrangement of the pump, E, F, train of wheels, G, ratchet-wheel, R, lever Q, and gas-holder, O, as and for the purpose herein specified.

57,630—Hydraulic Governor.—James E. Gillespie, assignor to Gillespie Governor Co., Boston.

I claim the combination of a governing device with the cylinder d, its piston, f, and the spring, n, or the equivalents of these, when arranged to operate together substantially as specified.

Also, in combination with the foregoing of a passage capable of variation when so arranged, as that by such variation the rate of speed of the movement of the piston under influence of its spring may be changed.

Also, combining a governor and the object governed thereby in such a manner that while the connection between the governor and governed object can be broken to prevent movement of the latter in one direction, the connection causing movement of the governed object in the reverse direction remains operative, substantially as shown and described.

57,639—Apparatus for Carburetting Air.—Jas. F. Rowley, Wm. M. Sloane, and James E. Woodruff, assignors to themselves and John D. Cross, Buffalo, N. Y.

I claim an apparatus for carburetting air or gas having a reservoir, B, for hydro-carbon, a lime-chamber, D, and chambers, E, and F, containing porous substances, all arranged and constructed in the manner and for the purposes substantially as set forth.

57,682—Apparatus for Generating Gas.—Mathias P. Coons, Brooklyn, N. Y.

I claim the internal arrangement of the retort, B, with the cylinder, D, and the lamp, Fig. 4, the wick-tube, J, and also the connecting tubes, as arranged, marked L L.

I also claim the application of the safety-valve, I, for the purpose and in the manner described, and in combination therewith the application of the stop-cock, in the manner and for the purpose described.

I also claim generating gas from volatile fluids by introducing the same into a generating retort by capillary attraction, for the purpose and in the manner herein set forth and described.

57,686—Apparatus for Carburetting Air.—Silas R. Devine, New York City.

I claim the use of chambers, B B B B, when placed one within another and composed of porous or perforated walls, substantially as described.

57,729—Apparatus for Carburetting Gas.—Algernon K. Johnson, New York City.

I claim the use of the materials above described, for the purposes set forth.

57,738—Barrel for Petroleum, etc.—John T. Lipps, Brooklyn, N. Y.

I claim a barrel for hydro-carbon Liquids provided with an air-pipe, c, and escape orifice, a, substantially as and for the purposes described.

57,761—Lighting Gas by Electricity.—Robert G. Pike, N. Y. City.

I claim, First, A plate for deflecting and spreading the gas as it comes from the burner before striking it with the spark, so as the more readily to mingle the air with it before striking, and also for the purpose of directing the gas to the place of striking, substantially as described.

Second, The combination of the metallic gauge, a, or perforated plate, with the tube or cap, or curved plate, and also with the deflector or spreader, substantially in the manner and for the purpose described.

Third, The metallic button, or its equivalent, upon the deflecting plate, operating substantially as described.

Fourth, The combination of the gauge, a, deflector, D, and boss, n, substantially as described.

57,788—Apparatus for Carburetting Air.—Jas. F. Spence, Williamsburg, N. Y.

I claim, First, The case, A, provided with two or more air or steam wheels, B B, working in the liquid in conjunction with each other, substantially as and for the purpose set forth.

Second, Heating the oil before it enters the machine by the jacket, E, surrounding the supply-tank, D, in combination with a hot-air or steam-pipe, b, or any other suitable means, substantially as and for the purpose described.

Third, The hot-air chamber, F, in combination with the burner, a, case, A, and jacket, E, constructed and operating substantially as and for the purpose described.

Fourth, The float, d, provided with the valve, f, in combination with the liquid supply-pipe, g, and case, A, constructed and operating substantially as and for the purpose described,

57,812—Apparatus for Carburetting Gas.—Thos. D. Worrall, New York City.

This invention covers twenty claims, mostly appertaining to the introduction into gas-pipe or pipes, carbon spirit, or other carbonizing fluid, by the aid of various materials variously disposed and arranged, having porosity and capillary power whereby the air or gas is passed through or over a large evaporizing surface to sufficiently charge it with hydro-carbon vapor for illuminating purposes, Also, several devices for carburetting when introduced into "any other box or chamber as well as gas-pipes."

REISSUES.

2,342—Gas-pipe Joint.—Henry L. Case (administrator of the estate of Richard C. Robbins, deceased) and Jesse M. Keen, both of Jersey City, N, J., and John W. Mason, Brooklyn, N. Y., assignees of said Robbins. Patented Jan. 13, 1863.

We claim a joint for gas and other similar pipes constructed as herein-above described, that is to say, the socket end of a length or section of pipe having a groove formed in it capable of retaining the packing in three directions, as set forth, a packing-ring of soft metal being cast into the said groove, and the plug end or entering end of the adjoining length or section of pipe being made conical and driven into said packing, substantially as herein-before described, and the said joint being composed of three parts only, as set forth.

THE MINING & PETROLEUM STANDARD AND AMERICAN GAS-LIGHT JOURNAL, is published at No. 22 Pine Street opposite the Sub-Treasury Building on the 2d and 16th of every month, and is a recognized official organ of—

LIGHT, HEAT, MINING INTERESTS.

PETROLEUM, WATER-SUPPLY, AND

SCIENTIFIC SUBJECTS GENERALLY.

TERMS.

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France. ..... Le Journal de l'Eclairage au Gaz, 25 Boulevard Poissonnière.

☞ All communications to be addressed to "The Editors," No. 22 Pine Street, New York.

Subscribers would confer a favor upon us by remitting checks, or post office money orders, as we are frequent losers where money is enclosed in letters.

SEPT. 30, 1866.